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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/829,566	04/22/2004	Kenneth A. Epstein	59079US002	6338
32692	7590	07/07/2006	[REDACTED]	EXAMINER
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			[REDACTED]	PAYNE, SHARON E
			[REDACTED]	ART UNIT
			[REDACTED]	PAPER NUMBER
			2875	

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/829,566	EPSTEIN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Sharon E. Payne	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-110 is/are pending in the application.
- 4a) Of the above claim(s) 8-15,23-30,38-45,53-65,73-85 and 93-105 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-7, 16-22, 31-37, 46-52, 66-72,86-92, 106-110 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. ____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>0704, 0905</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: ____ .

## DETAILED ACTION

### ***Election/Restrictions***

1. Claims 8-15, 23-30, 38-45, 53-65, 73-85 and 93-105 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected transreflector device, there being no allowable generic or linking claim. Election was made without traverse in the reply filed on 5/30/2006.

### ***Claim Objections***

2. Claims 51, 52, 69, 71, 72, 91 and 92 are objected to because of the following informalities: the phrase "with respect to an axis normal to the first surface" should be added to the end of each claim. These claims were examined assuming that this is what the Applicant meant.

3. Claim 66 is objected to because of the following informalities: 1) the phrase "making a second facet" should be "making a second angle" in line 7; and 2) the second occurrence of the phrase "the absolute values of the first angles" should be "the absolute values of the second angles" in line 8. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 31-33, 35, 37 and 106-110 are rejected under 35 U.S.C. 102(b) as being anticipated by Sumitomo (P2001-350008A).

Regarding claim 31, Sumitomo discloses a transreflector body having a refractive index (Fig. on p. 5 of translation, see ray trace), a first surface (p. 5, flat surface) and a second surface (p. 5, prisms), the second surface being a structured surface comprising a plurality of prismatic structures having a first facet and a second fact (p. 5, bottom of figure), each first facet making a first angle (p. 5, bottom of figure) and each second facet making a second angle (p. 5, bottom of figure) with respect to a normal to the first surface (p. 5), wherein the refractive index, the first angles and the second angles of the transreflector body are configured for transreflective operation (p.5, parts a and b) characterized by a transmitted exit angle (p. 5, portion a) and a reflected exit angle (p. 5, portion b), so that in a reflective mode, light incident onto the first surface at a reflected incident angle is refracted through the first surface (p. 5, portion b, reference number 2), reflected at the first facet of a first prismatic structure (reference number 2, bottom), and refracted through the first surface with a maximum intensity at about the reflected exit angle (p. 2, reference number 2), and in a transmissive mode (p. 5, portion a, reference number 4), light incident onto the second surface at a transmitted incident angle is directed by a prismatic structure to the first surface and refracted through the first surface with a maximum intensity at about the transmitted exit angle (p. 5, portion a, reference number 4).

Concerning claim 32, Sumitomo discloses the reflected exit angle being about the same as the transmitted exit angle (p. 5, reference numbers 2 and 4).

Regarding claim 33, Sumitomo discloses the first surface of the transflector body as being substantially planar (p. 5, top portion of refractive body).

Concerning claim 35, Sumitomo discloses the absolute values of the reflected and transmitted exit angles are from about 0 degrees to about 20 degrees with respect to an axis normal to the first surface (p. 5, portions a and b).

Regarding claim 37, Sumitomo discloses the absolute value of the reflected incident angle is from about 20 degrees to about 40 degrees with respect to an axis normal to the first surface (page 13 of the translation, line 9).

Concerning claim 106, Sumitomo discloses the steps of selecting a reflected incident angle (page 17 of the translation, paragraph 0024), selecting a transmitted incident angle (paragraph 0024), selecting a reflected exit angle (paragraph 0024), selecting a transmitted exit angle (paragraph 0024) and configuring a transflector body having a first surface (p. 5, middle of figure) and a second surface (p. 5, bottom of figure), the second surface being a structured surface comprising a plurality of prismatic structures (p. 5, bottom of figure), so that in a reflective mode, light incident onto the first surface at the reflected incident angle is refracted through the first surface to a first prismatic structure (p. 5, portion 2), directed by the first prismatic structure to a second prismatic structure (p. 5, portion 2), directed by the second prismatic structure to the first surface (p. 5, portion 2), and refracted through the first surface with a maximum intensity at about the reflected exit angle (p. 5, portion 2) and in a transmissive mode, light incident onto the second surface at the transmitted incident angle is directed by a

prismatic structure to the first surface (p. 5, portion 4) and refracted through the first surface with a maximum intensity at about the transmitted exit angle (p. 5, portion 4).

Concerning claim 107, Sumitomo discloses the transmitted exit angle being selected to be about the same as the reflected exit angle (p. 5, portions 2 and 4).

Regarding claim 108, Sumitomo discloses the first surface being selected to be substantially planar (p. 5, middle of the figure).

Concerning claim 109, Sumitomo discloses the steps of selecting a reflected incident angle (page 17 of the translation, paragraph 0024), selecting a transmitted incident angle (paragraph 0024), selecting a reflected exit angle (paragraph 0024), selecting a transmitted exit angle (paragraph 0024), configuring a transflector body having a refractive index (p. 5, portions 2 and 4), a substantially planar surface (p. 5, middle of the figure) and a structured surface comprising a plurality of prismatic structures having a first facet (p. 5, bottom of figure) and a second facet (p. 5, bottom of figure) each first facet making a first angle and each second facet making a second angle with respect to a normal to the substantially planar surface (p. 5, bottom of figure), so that in a reflective mode, light incident onto the substantially planar surface at the reflected incident angle is refracted through the substantially planar surface (p. 5, portion 2), reflected at the first facet of a first prismatic structure (p. 5, portion 2), reflected at the second facet of a second prismatic structure (p. 5, portion 2), and refracted through the substantially planar surface with a maximum intensity at about the reflected exit angle (p. 5, portion 2 of the figure), and in a transmissive mode, light incident onto the structured surface at the transmitted incident angle is directed by a

prismatic structure to the substantially planar surface (p. 5, portion 4 of the figure) and is refracted through the substantially planar surface with a maximum intensity at about the transmitted exit angle (p. 5, portion 4 of the figure).

Regarding claim 10, Sumitomo discloses the transmitted exit angle being selected to be substantially the same as the reflected exit angle (p. 5, portions a and b of the figure).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-7, 16-22, 34, 36, 46-52, 66-72 and 86-92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sumitomo in view of Koike et al. (U.S. Patent 6,172,809).

Regarding claim 1, Sumitomo discloses a transreflector body having a first surface and a second surface (p. 5, bottom and middle of the figure), the second surface being a structured surface comprising a plurality of prismatic structures having a first facet and a second facet (p. 5, bottom of the figure), wherein, in a reflective mode, light incident onto the first surface at a reflected incident angle is refracted through the first surface (p. 5, portion 2 of the figure) reflected at the first facet of a first prismatic structure (p. 5, portion 2 of the figure), reflected at the second facet of a second prismatic structure (p.

5, portion 2 of the figure), and refracted through the first surface with a maximum intensity at about a reflected exit angle (p. 5, portion 2 of the figure), and in a transmissive mode, light incident onto the second surface at a transmitted incident angle is directed by a prismatic structure to the first surface and refracted through the first surface with a maximum intensity at about a transmitted exit angle (p. 5, portion 4 of the figure). Sumitomo does not disclose what angle the facets make.

Koike et al. discloses the first facet making an angle with respect to the second facet that is no more than about 70 degrees (column 14, lines 39-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Koike et al. in the apparatus of Sumitomo to produce the desired optical effects.

Concerning claims 2, 17, 47, 67 and 87, Sumitomo discloses the reflected exit angle being about the same as the transmitted exit angle (p. 5, reference numbers 2 and 4).

Regarding claims 3, 18, 48, 68 and 88, Sumitomo discloses the first surface of the transreflector body as being substantially planar (p. 5, top portion of refractive body).

Concerning claims 4, 19, 34, 49, 69 and 89, Sumitomo does not disclose the value of the angles the facets make with respect to the normal. Koike et al. discloses each first facet making a first angle and each second facet making a second angle with respect to a normal to the first surface (Fig. 7A) and absolute values of the first and second angles are from about 22 degrees to about 42 degrees (column 14, lines 39-45).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Koike et al. in the apparatus of Sumitomo to produce the desired optical effects.

Concerning claims 5, 20, 50, 70 and 90, Sumitomo discloses the absolute values of the reflected and transmitted exit angles are from about 0 degrees to about 20 degrees with respect to an axis normal to the first surface (p. 5, portions a and b).

Regarding claims 6, 21, 36, 51, 71 and 91 Sumitomo does not disclose the absolute value of the transmitted incident angle. Koike et al. discloses the absolute value of the transmitted incident angle to be from about 100 to about 120 degrees with respect to an axis normal to the first surface (Fig. 7A). (The transmitted incident angle is 180 degrees minus 65 degrees which is 115 degrees.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Koike et al. in the apparatus of Sumitomo to produce the desired optical effects.

Concerning claims 7, 22, 52, 72 and 92, Sumitomo discloses the absolute value of the reflected incident angle is from about 20 degrees to about 40 degrees with respect to an axis normal to the first surface (page 13 of the translation, line 9).

Regarding claim 16, Sumitomo discloses a transreflector body having a first surface and a second surface (p. 5, bottom and middle), the second surface being a structured surface comprising a plurality of prismatic structures having a first facet and a second facet (p. 5, bottom of figure), each first facet making a first angle and each second facet making a second angle with respect to a normal to the first surface (p. 5,

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bottom of figure), wherein, in a reflective mode, light incident onto the first surface at a reflected incident angle is refracted through the first surface (p. 5, portion 2), reflected at the first facet of a first prismatic structure (p. 5, portion 2), reflected at the second facet of a second prismatic structure (p. 5, portion 2), and refracted through the first surface with a maximum intensity at about a reflected exit angle (p. 5, portion 2), and in a transmissive mode, light incident onto the second surface at a transmitted incident angle is directed by a prismatic structure to the first surface and refracted through the first surface with a maximum intensity at about a transmitted exit angle (p. 5, portion 4). Sumitomo does not disclose the values of the angles the facets make.

Koike et al. discloses the absolute values of the first angles being different from absolute values of the second angles (column 14, lines 40-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Koike et al. in the apparatus of Sumitomo to produce the desired optical effects.

Regarding claim 46, Sumitomo discloses a transreflector having a body (p. 5, whole figure), the body having a first surface and a second surface (p. 5, middle and bottom of the figure), the second surface being a structured surface that comprises a plurality of prismatic structures having a first facet and a second facet (p. 5, bottom of figure), wherein, in a reflective mode, light transmitted through the transreflector at and incident onto the first surface at a reflected incident angle is refracted through the first surface (p. 5, portion 2), reflected at the first facet of a first prismatic structure (p. 5, portion 2), reflected at the second facet of a second prismatic structure (p. 5, portion 2),

refracted through the first surface, and transmitted through the transreflector with a maximum intensity at about a reflected exit angle (p. 5, portion 2), and in a transmissive mode, light originating from the backlight and incident onto the second surface at a transmitted incident angle is directed by a prismatic structure to the first surface, refracted through the first surface, and transmitted through transreflector with a maximum intensity at about a transmitted angle (p. 5, portion 4). Sumitomo does not disclose an image-forming device, a backlight or the angle of the facets.

Koike et al. discloses a transmissive image-forming device (abstract), a backlight (abstract), and the first facet making an angle with respect to the second facet that is no more than about 70 degrees (column 14, lines 40-45), said transreflector disposed between the image-forming device and the backlight so that the first surface faces the image-forming device and the second surface faces the backlight (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Koike et al. in the apparatus of Sumitomo to produce an image with adequate and even backlighting.

Concerning claim 66, Sumitomo discloses a transreflector body having a first surface and a second surface (p. 5, bottom and middle), the second surface being a structured surface comprising a plurality of prismatic structures having a first facet and a second facet (p. 5, bottom of figure), each first facet making a first angle and each second facet making a second angle with respect to a normal to the first surface (p. 5, bottom of figure), wherein, in a reflective mode, light incident onto the first surface at a reflected incident angle is refracted through the first surface (p. 5, portion 2), reflected at

the first facet of a first prismatic structure (p. 5, portion 2), reflected at the second facet of a second prismatic structure (p. 5, portion 2), and refracted through the first surface with a maximum intensity at about a reflected exit angle (p. 5, portion 2), and in a transmissive mode, light incident onto the second surface at a transmitted incident angle is directed by a prismatic structure to the first surface and refracted through the first surface with a maximum intensity at about a transmitted exit angle (p. 5, portion 4). Sumitomo does not disclose an image-forming device, a backlight or the angle of the facets.

Koike et al. discloses a transmissive image-forming device (abstract), a backlight (abstract), each first facet making a first angle and each second facet making a second angle with respect to a normal to the first surface, and the absolute values of the first angles being different from absolute values second angles (column 14, lines 40-45), said transreflector disposed between the image-forming device and the backlight so that the first surface faces the image-forming device and the second surface faces the backlight (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Koike et al. in the apparatus of Sumitomo to produce an image with adequate and even backlighting.

Regarding claim 86, Sumitomo discloses a transreflector body having a refractive index (Fig. on p. 5 of translation, see ray trace), a first surface (p. 5, flat surface) and a second surface (p. 5, prisms), the second surface being a structured surface comprising a plurality of prismatic structures having a first facet and a second fact (p. 5, bottom of

figure), each first facet making a first angle (p. 5, bottom of figure) and each second facet making a second angle (p. 5, bottom of figure) with respect to a normal to the first surface (p. 5), wherein the refractive index, the first angles and the second angles of the transreflector body are configured for transreflective operation (p.5, parts a and b) characterized by a transmitted exit angle (p. 5, portion a) and a reflected exit angle (p. 5, portion b), so that in a reflective mode, light incident onto the first surface at a reflected incident angle is refracted through the first surface (p. 5, portion b, reference number 2), reflected at the first facet of a first prismatic structure (reference number 2, bottom), and refracted through the first surface with a maximum intensity at about the reflected exit angle (p. 2, reference number 2), and in a transmissive mode (p. 5, portion a, reference number 4), light incident onto the second surface at a transmitted incident angle is directed by a prismatic structure to the first surface and refracted through the first surface with a maximum intensity at about the transmitted exit angle (p. 5, portion a, reference number 4).

Koike et al. discloses a transmissive image-forming device (abstract), a backlight (abstract), said transreflector disposed between the image-forming device and the backlight so that the first surface faces the image-forming device and the second surface faces the backlight (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the light go through the image-forming device as shown in Koike et al. in the apparatus of Sumitomo to produce an image with adequate and even backlighting.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon E. Payne whose telephone number is (571) 272-2379. The examiner can normally be reached on regular business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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